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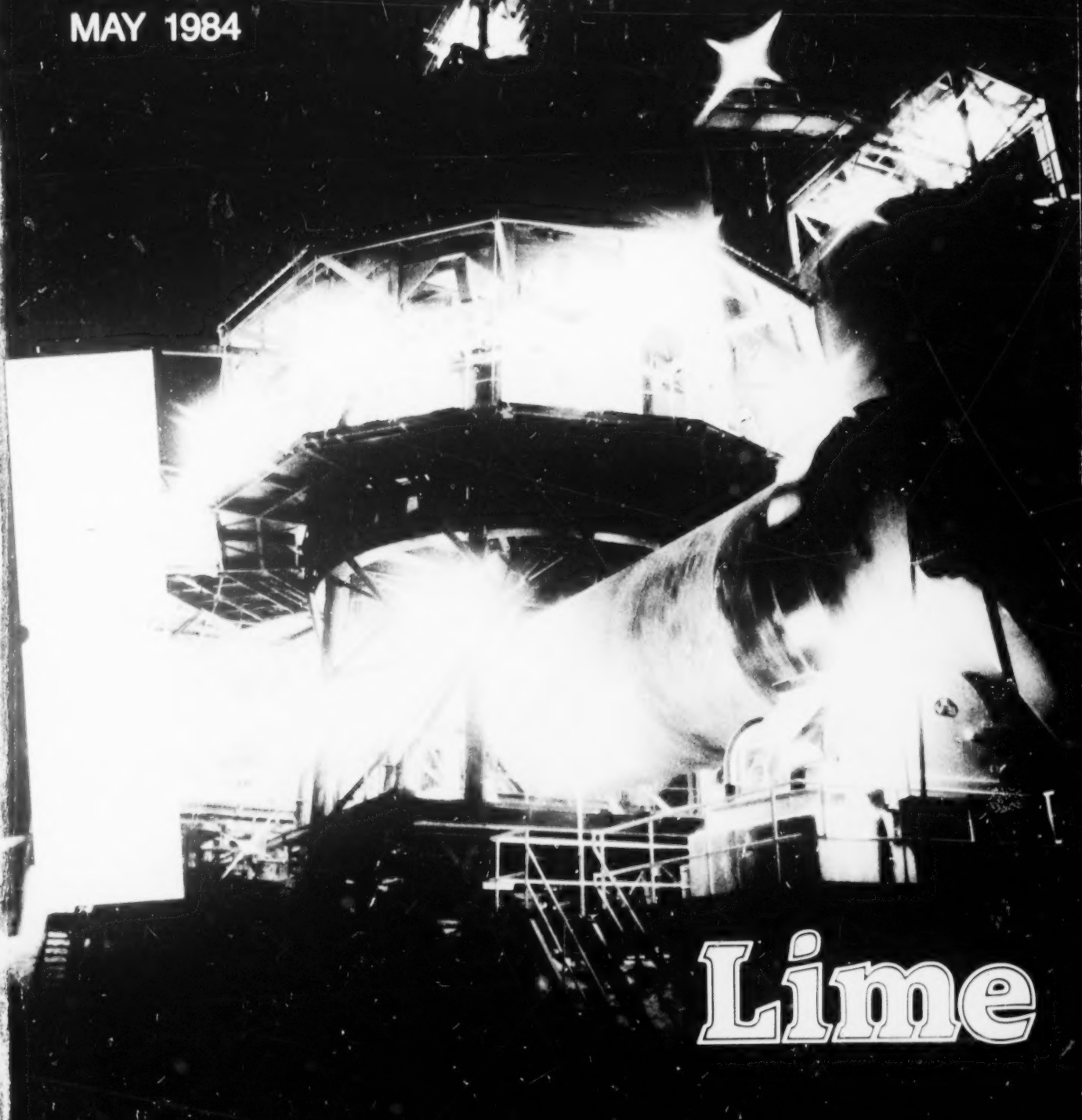

Lime

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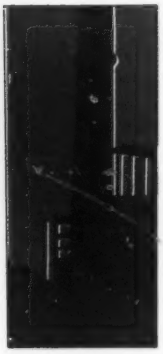

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United States Gypsum Co.'s New Braunfels, Tex. lime plant illuminates the night. Photo courtesy of U.S. Gypsum.

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MEMBER

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for the aggregate producers. Attendance was nearly 290, making it one of the largest gatherings in the associations' histories. Speaker topics and roundtable discussions centered on promotion and marketing, safety, and other industry problems.

New officers of KRMCA elected were: President—Dean Salisbury, Haven Redi-Mix; first vice president—Jim Powell, Allied, Inc.; second vice president—Richard Allen, Builders Concrete & Supply; and secretary/treasurer—M. H. Ohlemeier, Wakeeney Redi-Mix. Newly elected to the board of directors are: Bruce Collins, Concrete Construction Service, Inc.; and A. J. Holmquist, A.J.'s Quality Concrete, Inc.

KAPA officers for 1984 are: President—Steven Hatfield, Ritchie Sand Co.; vice president—John Neuner, Kansas Sand & Concrete, Inc.; and secretary/treasurer—Dennis Clovis, Salina Sand Co. The new director elected was Harold Morgison, Dodge City Sand Co.

OSHA chief Auchter resigns

Thorne G. Auchter resigned as head of the Occupational Safety and Health Administration March 30. At press time, no successor had been named, although acting chief Patrick R. Tyson, former deputy assistant secretary, is reportedly on top of the government's list.

Auchter advocated "friendly persuasion" with regulated businesses rather than the stern policing practices once employed. As a result, consumer groups and organized labor criticized him throughout his 3-year tenure. However, the 39-year-old Auchter has said his resigning had nothing to do with criticism of his performance.

Auchter, who handled President Reagan's 1980 campaign effort in the state of Florida, is now president of a Kansas construction company.

Pitcock named AGC president

Houston general contractor Doug Pitcock is the new president of the 32,500 member firm Associated General Contractors of America. He is the fifth open shop president of the association during the

Comparison of 1984/1983 Construction Contract Values*

	2 Mos. 1984 (000,000)	2 Mos. 1983 (000,000)	Cumulative Percent Change
Nonresidential building	$ 9,565.5	$ 8,490.5	+13
Residential building	13,418.4	10,022.6	+34
Nonbuilding construction	4,995.0	4,198.3	+19
Total construction	$27,978.9	$22,711.4	+23

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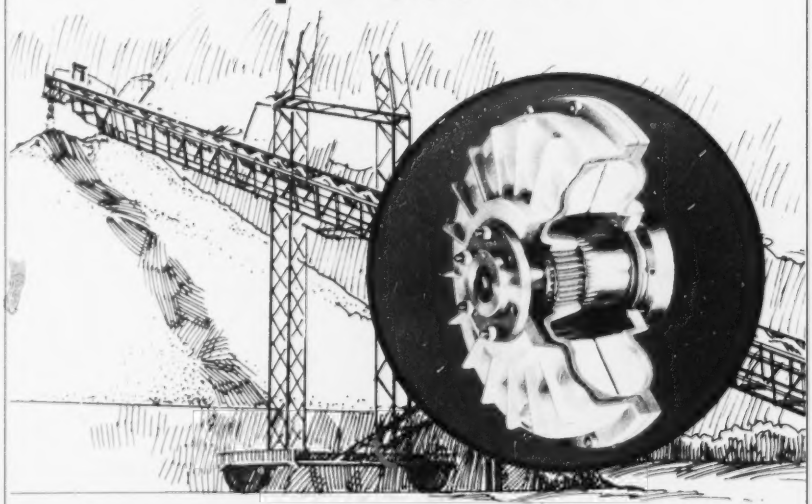

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DANA

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Conservation tillage: a growing market for aglime

By Bruce W. Remick

"Conservation tillage: Any tillage sequence that reduces loss of soil or water relative to conservation tillage; often a form of non-inversion tillage that retains protective amounts of crop residue mulch on the soil surface" USDA

American farmers are converting to conservation tillage at an increasing rate. According to U.S. Department of Agriculture statistics summarized in Table 1, crop land farmed under all types of conservation tillage increased by 81.8 million acres or 186% from 1973 to 1983. During this same period, acreage under conventional tillage, historically the dominant form of tillage used by U.S. farmers, decreased by 7.4 million acres or about 4%. In 1973, conservation tillage was the tillage method of choice on only about 18% of acreage under cultivation in the United States. By 1983, that figure had increased to 40%.

This trend is expected to continue. Peter C. Myers, chief of the U.S. Soil Conservation Service, USDA, projects that, within 25 years, 90% of all tilled cropland in the United States will be farmed under some form of conservation tillage. If Dr. Myers' projection materializes as expected, it will have a major impact on future aglime usage.

Table 1

U.S. Crop Acreage Under Conventional and Conservation Tillage

Type of tillage	1973	1981	1982	1983	Increase (Decrease) 1973—1983 Acres	Percent
Conventional tillage	203.6	205.7	204.2	196.2	(7.4)	(3.6)
Conservation tillage						
Minimum tillage	39.1	88.0	100.3	112.8	73.7	187.2
No-Till	4.9	8.7	11.5	13.0	8.1	165.3
Total conserv. tillage	44.0	96.7	111.8	125.8	81.8	185.9

All conservation tillage systems are designed to reduce the number and frequency of tillage operations performed when preparing a field for planting. The concept of conservation tillage implies the elimination of primary tillage operations (plowing and discing) from the tillage sequence. Also, an identifying feature of no-till planting is that all pre-plant tillage operations are eliminated from the operation. A characteristic common to all conservation tillage systems, therefore, is that the soil is typically worked or disturbed to a shallower depth, usually to no more than 2-4 in., as compared with conventional tillage where the soil is worked to a depth of 8-10 in. or more.

This encourages the accumulation of fertilizer, herbicide, and crop residues in the surface layers of soil—a situation that causes the development of strongly acid conditions in the soil zone where the crop will be planted. For example, in field trials in Pennsylvania and Kentucky, it has been shown that application of nitrogen under no-till conditions can cause reductions of up to two full pH units in surface soil pH depending on the type of nitrogen material used and rate of application (see Tables 2 and 3).

Similar trials in Maryland have demonstrated that, under no-till conditions, the applications of 160 lbs. of actual nitrogen per acre applied to corn can cause reductions of 1.5 pH units at the soil surface within a matter of several weeks.

Table 2

Soil pH of surface inch produced by various nitrogen materials after 5 years. N applied at 180 lbs. N/Acre/Year—Pennsylvania.

N Source and Soil pH				
Control	UREA	28% N Soln	Am. Nitrate	Am. Sulfate
6.7	5.9	5.8	5.5	4.7

Table 3

Effect of 5 years of continuous corn under no-till conditions on surface soil pH (0-2") at different N rates—Kentucky.

Starting pH	No N	75 Lbs. N/Acre/Yr	150 Lbs. N/Acre/Yr
5.3	5.2	4.8	4.6

Table 4

Effect of lime treatment on soil pH after 5 years of no-till continuous corn. Starting pH. 5.7—Kentucky.

Lime rate Tons/Acre	Final* pH	Corn yield Bus./Acre
0	4.6	101
1.5	5.5	111
4.5	6.4	119

Note: 4.5 tons/acre aglime raised pH to 6.4 and yield by 18 bus./acre after 5 years continuous no-till corn.

Soil acidity increases of this magnitude contribute to a number of factors that limit crop yields and cause significant income losses to the farmer:

- Reduced availability of many essential nutrients required by crops for growth to harvestable maturity
- Increased solubility of certain micronutrients and aluminum to soil levels toxic to crops
- Reduced activity of beneficial soil microorganisms and increased activity of disease producing ones that thrive under acid soil conditions
- Significant yield losses due to heavy weed infestations at harvest time, the result of poor herbicide performance under acid soil conditions, that prevent the efficient operation of harvest equipment.

These problems are associated with soil acidity generally. They are accentuated on soils farmed using conservation tillage practices. A well planned and executed liming program is the most effective means available to the farmer for controlling or eliminating them (Table 4). Some farmers, practicing conventional tillage, may tend to "hedge" on liming their soils. If a farmer does this while implementing a conservation tillage program, he risks significant loss of crop production, possible crop failure, and loss of income.

Accordingly, aglime use can be expected to increase as more farmers convert to conservation tillage. Not only will they find it *necessary* to lime their conservation tillage acreage; they may have to apply it at more frequent intervals, in many cases on an annual basis, as compared with the normal 2-3 year intervals associated with conventional tillage. The net effect will be an increase in aglime demand and usage over the long term.

Maryland, a major conservation tillage state, is a case in point. Since the early 1970s, when Maryland farmers began using conservation tillage techniques, aglime usage in that state has nearly doubled, from approximately 226,000 tons in 1972 to more than 425,000 tons in 1983. University of Maryland agronomists attribute this phenomenon largely to the increased use of no-till and other conservation tillage practices.

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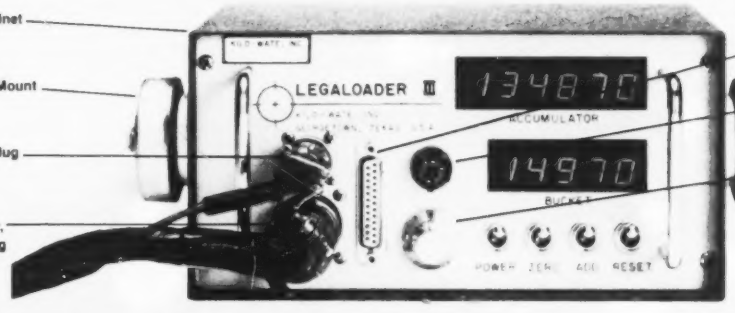

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This is especially significant in light of the fact that Agriculture Conservation Program (ACP) cost sharing incentives to farmers for using aglime on cropland were discontinued in 1972. It is reasonable to expect that aglime usage and sales in other areas where conservation tillage is gaining acceptance will be similarly affected.

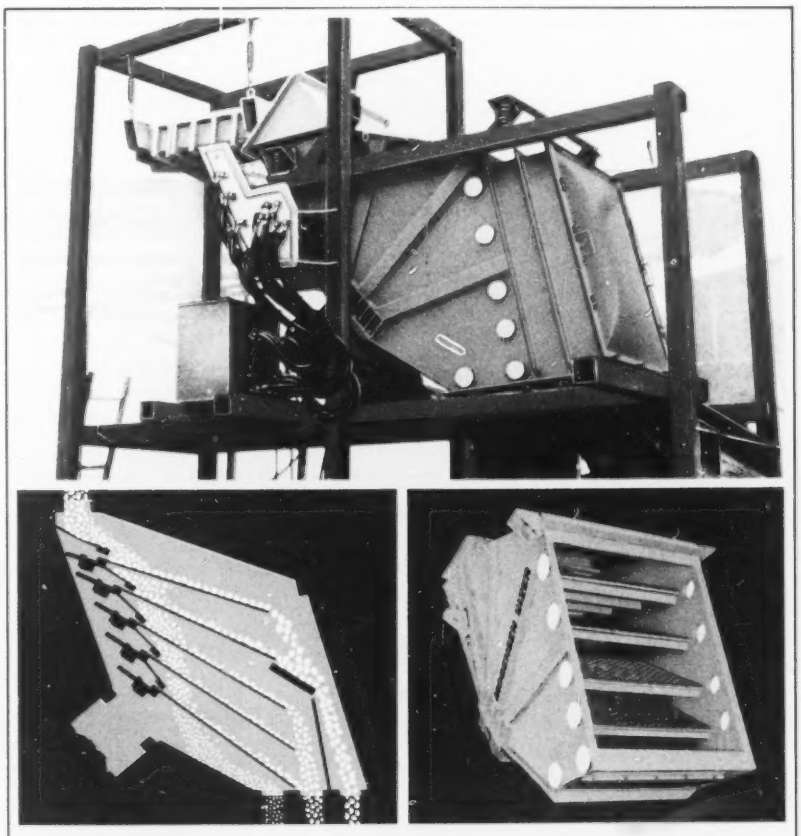
Conservation tillage, because of its role in soil and water conservation on agricultural land, is a major aspect of the broader issue of natural resource conservation in the United States. In recognition of its importance, Secretary of Agriculture John R. Block, at his news conference on December 8, 1983, announced that he will convene a national conference to address the subject of conservation tillage. Entitled "Conservation Tillage: Strategies for the Future," this conference will feature 45 speakers who will address all aspects of this expanding system of crop land management. It will be held October 3-5 at the Opryland Hotel in Nashville, Tenn. Secretary Block will open the conference with a keynote address at a luncheon on Wednesday, October 3. Adjournment will be at noon Friday, October 5.

The general sessions on Wednesday afternoon will deal with the concept of conservation tillage, its advantages to the farmer, the broader public interest in the practice, and the future meaning of conservation tillage for farmers, science, and the agribusiness industries (including aglime producers). Smaller concurrent sessions throughout the second day and during the next morning will allow all participants to learn the latest information on production technology, ecological effects, education and information strategies, economic impacts, and public policy relating to conservation tillage. A final session will bring all participants together for a summary of questions, facts, insights, and an outlook on each of the discussion areas. Participation in the conference will be opened to 1,000 representatives of the agribusiness industry, the scientific and professional sector, agricultural producers, government, public interest groups, and the agricultural media.

The National Crushed Stone Association and the National Limestone Institute were responsible for proposing this conference to the Secretary of Agriculture. Now, representing two of approximately 55 organizations that will co-sponsor the event, staff members from both associations are on working committees to plan and implement the conference.

The crushed stone industry has a big stake in this conference. Present acreage trends and technological developments relating to conservation tillage clearly indicate that it is a growing market for aglime. Soil pH management through regular aglime use is a major factor in the success of conservation tillage farming. NCSA and NLI sponsorship and involvement in planning for this conference assures that aglime will be represented as one of its major program topics. ●

Bruce Remick is director of aglime marketing for NCSA.



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